

U.S. Serial No. 10/772,391

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IN THE CLAIMS

1. (Original) A semiconductor device comprising:

a semiconductor substrate of a first conductivity type;

first, second, and third wells being each of a second conductivity type opposite to said first conductivity type and provided in said semiconductor substrate;

a first field-effect transistor being of a first channel conductivity type and driven by a first supply voltage, and a second field-effect transistor driven by a second supply voltage larger in absolute value than said first supply voltage, the first and second transistors being arranged in said first well;

a third field-effect transistor being of said first channel conductivity type and driven by said first supply voltage, the third transistor being arranged in said second well;

_____ a fourth field-effect transistor being of a first channel conductivity type and driven by said second supply voltage, the fourth transistor being arranged in said third well;

a first isolation layer provided between said first and second field-effect transistors; and

a second isolation layer provided between said first and second wells and between said second and third wells,

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wherein said second supply voltage is supplied to said first well,

said first supply voltage is supplied to said second well,

said second supply voltage is supplied to said third well, and

said second isolation layer is wider than said first isolation layer.

2. (Original) The semiconductor device according to claim 1,

wherein a threshold voltage of said first field-effect transistor is set lower than that of said second field-effect transistor.

3. (Original) The semiconductor device according to claim 1,

wherein a gate insulator of said first field-effect transistor and that of said second field-effect transistor are equal to each other in thickness.

4. (Original) The semiconductor device according to claim 1,

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wherein said second field-effect transistor is a field-effect transistor constituting a memory cell of an SRAM, and said first field-effect transistor is a field-effect transistor constituting a peripheral circuit of said SRAM.

5. (Original) The semiconductor device according to claim 4,

wherein said first, second, and third wells are provided so that they are respectively enclosed within first, second, and third buried wells, each of which is of said first conductivity type.

6. (Original) A semiconductor device comprising:
a semiconductor substrate of a first conductivity type;
first, second, and third buried wells being each of a second conductivity type opposite to said first conductivity type and provided in said semiconductor substrate;

first, second, and third wells being each of a second conductivity type and provided so that they are respectively enclosed within said first, second, and third buried wells;

a first field-effect transistor being of said first channel conductivity type and driven by a first supply voltage, and a second field-effect transistor being of said

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first channel conductivity type and driven by a second supply voltage larger in absolute value than said first supply voltage, the first and second transistors being provided in said first well;

a third field-effect transistor being of said first channel conductivity type and driven by said first supply voltage, the third transistor being arranged in said second well;

a fourth field-effect transistor of said first channel conductivity type and driven by said second supply voltage, the fourth transistor being arranged in said third well;

a first isolation layer provided between said first and second field-effect transistors; and

a second isolation layer provided between said first and second wells and between said second and third wells,

wherein said second supply voltage is supplied to said

----- first well,

said first supply voltage is supplied to said second well,

said second supply voltage is supplied to said third well, and

said second isolation layer is wider than said first isolation layer.

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7. (Original) The semiconductor device according to claim 6,

wherein a threshold voltage of said first field-effect transistor is set lower than that of said second field-effect transistor.

8. (Original) The semiconductor device according to claim 6,

wherein a gate insulator of said first field-effect transistor and that of said second field-effect transistor are equal to each other in thickness.

9. (Original) The semiconductor device according to claim 6,

wherein said second field-effect transistor is a field-effect transistor constituting a memory cell of an SRAM, and
-----said first field-effect transistor is a field-effect transistor constituting a peripheral circuit of said SRAM.

10. (Currently amended) A semiconductor device comprising:

a semiconductor substrate of a first conductivity type;

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a first buried well being of a second conductivity type opposite to said first conductivity type and provided in said semiconductor substrate;

a first well being of said second conductivity type and provided so that the first well is enclosed within said first buried well;

a first field-effect transistor being of said first channel conductivity type and driven by a first supply voltage; and

a second field-effect transistor being of said first channel conductivity type and driven by a second supply voltage larger in absolute value than said first supply voltage,

wherein the first and second field-effect transistors are arranged in said first well, and

wherein said second supply voltage is supplied to said _____first well.

11. (Currently amended) The semiconductor device according to claim 10, further comprising:

a ~~fourth~~ second well of said first conductivity type is provided so that the ~~fourth~~ second well is enclosed within said first buried well; and

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a ~~fifth~~ third field-effect transistor of said second channel conductivity type opposite to said first channel conductivity type is arranged in said ~~fourth~~ second well.

12. (Currently amended) A semiconductor device comprising:

a semiconductor substrate of a first conductivity type;

a first buried well being of a second conductivity type opposite to said first conductivity type and provided in said semiconductor substrate;

~~fifth~~ first and ~~sixth~~ second wells being each of said second conductivity type and provided so that they are enclosed within said first buried well;

~~seventh~~ third and ~~eighth~~ fourth wells being each of said first conductivity type and provided so that they are enclosed within said first buried well;

----- a first field-effect transistor being of said first channel conductivity type and driven by a first supply voltage, the first transistor being arranged in said ~~fifth~~ first well;

a second field-effect transistor being of said first channel conductivity type and driven by a second supply voltage larger in absolute value than said first supply

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voltage, the second transistor being arranged in said ~~sixth~~
second well;

a ~~sixth~~ third field-effect transistor being of said
second channel conductivity type opposite to said first
channel conductivity type, the ~~sixth~~ third transistor being
arranged in said ~~seventh~~ third well; and

a ~~seventh~~ fourth field-effect transistor of said second
channel conductivity type, the ~~seventh~~ fourth transistor being
arranged in said ~~eighth~~ fourth well,

wherein said second supply voltage is supplied to both
said ~~fifth~~ first and ~~sixth~~ second wells.

13. (Currently amended) The semiconductor device
according to claim 12, further comprising:

second and third buried wells, each of said second
conductivity type, provided in said semiconductor substrate;

----- a ~~ninth~~ fifth well of said second conductivity type
provided so that the ~~ninth~~ fifth well is enclosed within said
second buried well;

an ~~eighth~~ a fifth field-effect transistor of said first
channel conductivity type, driven by said first supply voltage
and arranged in said ~~ninth~~ fifth well;

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a ~~tenth~~ sixth well of said second conductivity type provided so that the ~~tenth~~ sixth well is enclosed within said third buried well;

a ~~ninth~~ sixth field-effect transistor of said first channel conductivity type, driven by said second supply voltage and arranged in said ~~tenth~~ sixth well;

a first isolation layer provided between said first and second field-effect transistors; and

a second isolation layer provided between said first and second wells and between said second and third wells,

wherein said second isolation layer is wider than said first isolation layer, and

wherein said first supply voltage is supplied to said ~~ninth~~ fifth well, and said second supply voltage is supplied to said ~~tenth~~ sixth well.

14. (Currently amended) A semiconductor device, comprising:

a semiconductor substrate of a first conductivity type;

a first buried well being of a second conductivity type opposite to the first conductivity type and provided in said semiconductor substrate;

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~~fifth~~ first and ~~sixth~~ second wells being each of said second conductivity type and provided so that they are enclosed within said first buried well;

~~an eleventh~~ a third well being of said first conductivity type and provided between said ~~fifth~~ first and ~~sixth~~ second wells so that the ~~eleventh~~ third well is enclosed within said first buried well;

a first field-effect transistor being of said first channel conductivity type and driven by a first supply voltage, the first transistor being arranged in said ~~fifth~~ first well;

a second field-effect transistor being of said first channel conductivity type and driven by a second supply voltage larger in absolute value than said first supply voltage, the second transistor being arranged in said ~~sixth~~ second well; and

----- a ~~sixth~~ third field-effect transistor of said second channel conductivity type opposite to said first channel conductivity type, the ~~sixth~~ third transistor being arranged in said ~~eleventh~~ third well,

wherein said second supply voltage is supplied to both of said ~~fifth~~ first and ~~sixth~~ second wells.

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15. (Currently amended) The semiconductor device according to claim 14, further comprising:

second and third buried wells being each of a second conductivity type are provided in said semiconductor substrate;

a ~~twelfth~~ fourth well of said second conductivity type provided so that the ~~twelfth~~ fourth well is enclosed within said second buried well;

~~an eighth~~ a fourth field-effect transistor of said first channel conductivity type, driven by said first supply voltage and arranged in said ~~twelfth~~ fourth well;

a ~~thirteenth~~ fifth well is provided so that it is enclosed within said third buried well;

a ~~ninth~~ fifth field-effect transistor of said first channel conductivity type, driven by said second supply voltage and arranged in said ~~thirteenth~~ fifth well;

_____ a first isolation layer provided between said first and second field-effect transistors; and

a second isolation layer provided between said first and second wells and between said second and third wells,

wherein said second isolation layer is wider than said first isolation layer, and

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wherein said first supply voltage is supplied to said
~~twelfth~~ fourth well, and said second supply voltage is
supplied to said ~~thirteenth~~ fifth well.